Chapter 1: Purpose of and Need for the Vineyard Connector Project

This document has been prepared to evaluate the existing and expected transportation conditions in northern Utah County, Utah, and the expected environmental consequences of constructing a project that meets the transportation needs of existing and future residents. This project, which is being proposed by the Utah Department of Transportation (UDOT), is known as the Vineyard Connector (VC).

1.1 Purpose and Need Project Evaluation Area

The following discussion focuses on an area of northern Utah County that is generally north and east of the northeastern shore of Utah Lake and that includes parts of five incorporated areas—Lehi, American Fork, Lindon, Orem, and Vineyard—and unincorporated areas of Utah County. As shown in Figure 1-1 below, the VC project evaluation area is bounded by American Fork Main Street west of Interstate 15 (I-15) on the north, about Orem 100 South on the south, I-15 on the east, and Utah Lake and Lehi 300 East on the west. Section 1.3.1, History, explains why this area was selected as the project evaluation area. The cities of American Fork, Lindon, and Vineyard make up most of the evaluation area, but the evaluation area also includes small parts of Lehi and Orem.

1.2 Summary of the Project's Purpose

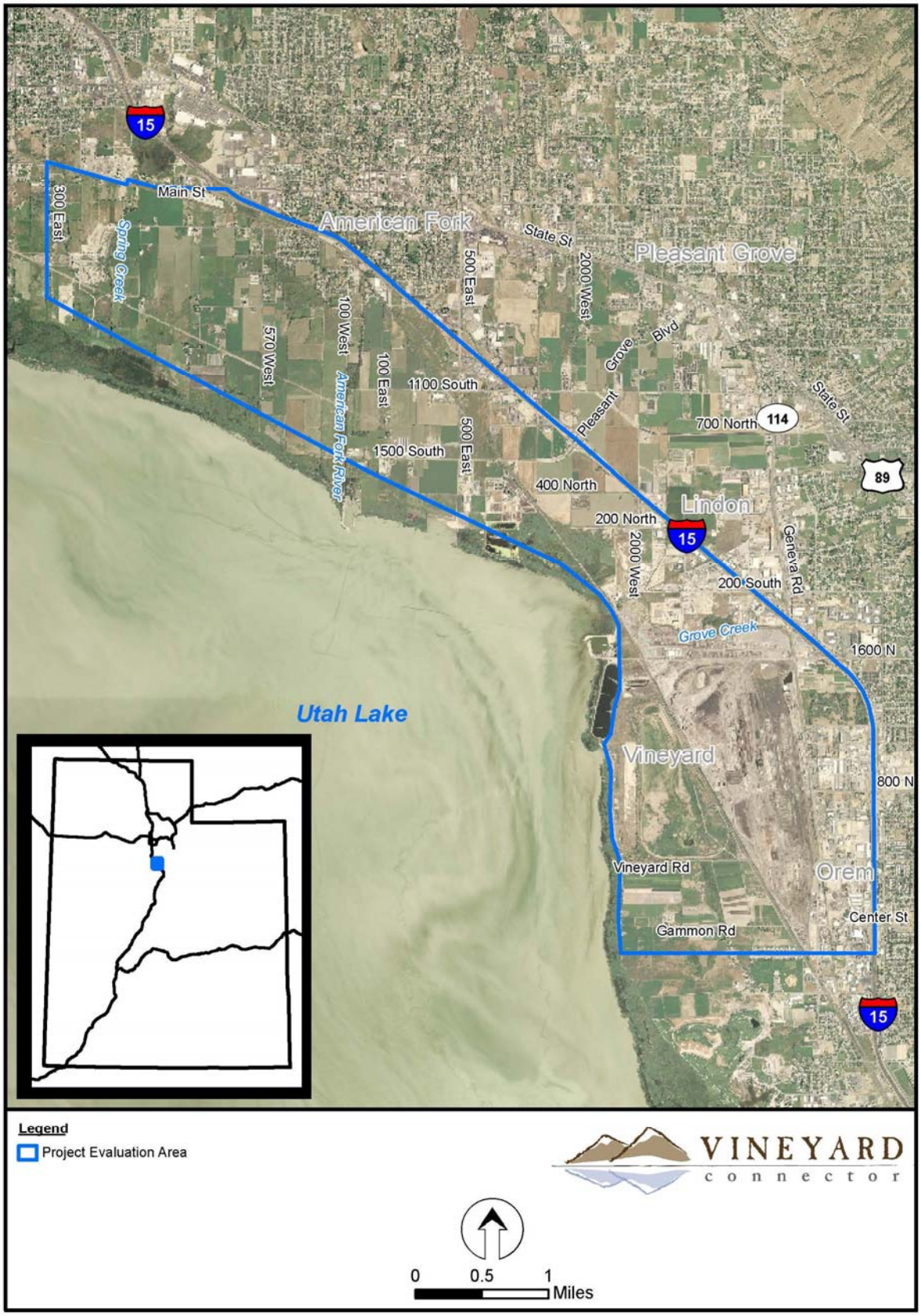
By constructing the VC, UDOT intends to fulfill the following primary purposes:

- To improve regional north-south mobility west of I-15 and east of Utah Lake between Lehi, American Fork, Lindon, Orem, and Vineyard
- To provide access to the part of Vineyard that includes the former Geneva Steel plant site, which is being redeveloped and will support a Utah Transit Authority (UTA) transit station

When developing a project that meets these purposes, UDOT will also consider the following project objectives:

- Minimize impacts to existing homes and businesses.
- Minimize impacts to important resources such as wetlands, Agriculture Protection Areas, historic structures, and habitat for sensitive species.
- Consider the land-use and transportation planning objectives of Lehi, American Fork, Lindon, Orem, and Vineyard.

Figure 1-1. Vineyard Connector Project Evaluation Area



The primary project purposes were used to identify and develop the project alternatives described in Chapter 2, Alternatives, and were used as criteria for screening or eliminating alternatives that were not reasonable or practicable. The project objectives were used to further refine the project alternatives (such as through minor shifts in the alignments) but were not used to determine if an alternative was reasonable or practicable.

1.3 Project Background

1.3.1 History

The proposed project was first identified in the Mountainland Association of Governments' (MAG) 2007 Regional Transportation Plan (RTP) (MAG 2007). The RTP identifies the VC as the *East Lake Parkway*, a new four-lane road between 1000 South in Lehi and Center Street in Orem. (The Statewide Transportation Improvement Program [UDOT 2007] identifies the project as *Vineyard Connector, 800 North to I-15 American Fork*.) However, planning for a connector through the town of Vineyard has been part of the redevelopment proposals for the former Geneva Steel plant site since the land was purchased from the Geneva Steel bankruptcy estate.

The former Geneva Steel plant site, which supported an operating steel plant from 1944 to 2001, encompasses 1,750 acres in Vineyard. The steel plant has been completely dismantled, and the site is undergoing extensive remediation to remove hazardous materials.

In May 2004, Geneva Steel and U.S. Steel (USS) became joint permittees under a State of Utah/U.S. Environmental Protection Agency (EPA) Section 3006(b) Resource Conservation and Recovery Act (RCRA) Permit for Post-Closure Care of a hazardous waste impoundment on the Geneva Steel plant site. The RCRA permit directs how Geneva Steel and USS are to conduct site-wide corrective action. After Geneva Steel ceased to operate as a corporation, Anderson Geneva purchased the property and is now the co-permittee with USS. One of the purposes of the site-wide corrective action, or site remediation, is to allow for redevelopment of the site. The Utah Department of Environmental Quality (UDEQ), which oversees work completed under the RCRA permit, is supporting site redevelopment and considers the property in the category of a Brownfield site. The purpose of the Brownfield category is to return contaminated land to a productive economic use, which takes development pressures off of undeveloped, open land while improving local environmental conditions. Providing access to and through the Geneva Steel plant site would contribute to the redevelopment of this important area of Utah County.

Post-remediation redevelopment plans for this area include mixed commercial and residential development, residential development, park and trail development, and construction of an intermodal transportation hub that could include bus, commuter-rail service, and light-rail service. UTA's planned Vineyard commuter-rail station in Vineyard would be the focus of this intermodal hub.

UTA is also planning to construct a commuter-rail station in the northern part of the VC evaluation area in American Fork. The VC would provide a valuable connection to this commuter-rail station from the south.

Based on the project's inclusion in the RTP and the planned redevelopment of the Geneva Steel site, UDOT launched the VC study in late 2007. UDOT is focusing on the area south of Main Street in American Fork, west of I-15, east of Utah Lake, and north of Center Street in Orem because it lacks major roads that could support planned development and redevelopment in the area. The focus of this connector road is to improve regional mobility in this area while providing access to the Geneva Steel redevelopment area and planned commuter-rail station.

1.4 Regional and Local Planning Considerations

1.4.1 Mountainland Association of Governments' 2007–2030 Regional Transportation Plan

MAG has primary responsibility for regional transportation planning in Utah and Wasatch counties. MAG coordinates with the cities, counties, UDOT, transit agencies, and others in the transportation community to identify transportation needs and develop feasible solutions. Transportation programs managed by the metropolitan planning organization include transportation planning (including an RTP), air quality forecasting, trails and pedestrian planning, the metropolitan planning organization's annual Work Program, and mapping.

The metropolitan planning process evaluates how roadway, transit, and pedestrian projects in a region interrelate, including the connectivity from one project to the next and how each project affects the others. As funding becomes available, projects that have independent utility are identified for construction. *Independent utility* means that the project would be usable by itself and would represent a reasonable expenditure of funds even if no additional transportation improvements in the area are made.

The RTP is MAG's primary transportation planning document. It documents the need for additional capacity in northwest Utah County and specifically identifies funding for new capacity as a primary goal of the plan. According to the current

plan, population and employment growth rates far outpace the funding that is available for needed improvements to roadway capacity (MAG 2007). The goals of the plan that would be addressed through the VC project are:

- Maximize accessibility to important services, which will also reduce congestion and minimize travel times.
- Develop a coordinated intermodal system of highway and transit improvements to meet the transportation needs of the area.
- Develop transportation facilities that serve the land-use patterns of the area and fit in with the character of development in each local area.

The 2007 RTP describes the Vineyard Connector project (referred to as the East Lake Parkway project) as "construction of a new four-lane road connecting Orem Center Street to Lehi 1000 South." The description includes a trail, though the type of trail is not defined. The project is identified for construction between 2007 and 2015.

The 2007 RTP reflects the fact that the VC project is fully funded by state funds. Since the project is included in the RTP, ongoing regional and project planning by MAG (and by northern Utah County cities) assumes that the VC project would be constructed. The current RTP also recommends that the project include bicycle and pedestrian facilities. Because the project would parallel the UTA commuter-rail line, the RTP does not recommend any additional transit service on the VC.

1.4.2 Statewide Transportation Improvement Program

UDOT's Statewide Transportation Improvement Program (UDOT 2007) for the period 2007 through 2012 includes the VC project. The Statewide Transportation Improvement Program describes the project as new construction that is funded without federal funds. The VC project was identified in 2007 as a Critical Highway Needs project. During the 2007 Utah legislative session, House Bill 314 created the Critical Highway Needs Fund. Critical highway projects are identified by UDOT, the Utah Transportation Commission, and the legislature's Executive Appropriations Committee. Eligible projects must be a high priority because of growth in the area, must provide critical access due to commercial and energy development, must alleviate congestion, or must provide an alternate route for I-15 reconstruction. The VC project was identified as a Critical Highway Needs project because it would provide access through the Geneva Steel redevelopment site and a commuter-rail station and could help alleviate congestion on I-15 during reconstruction.

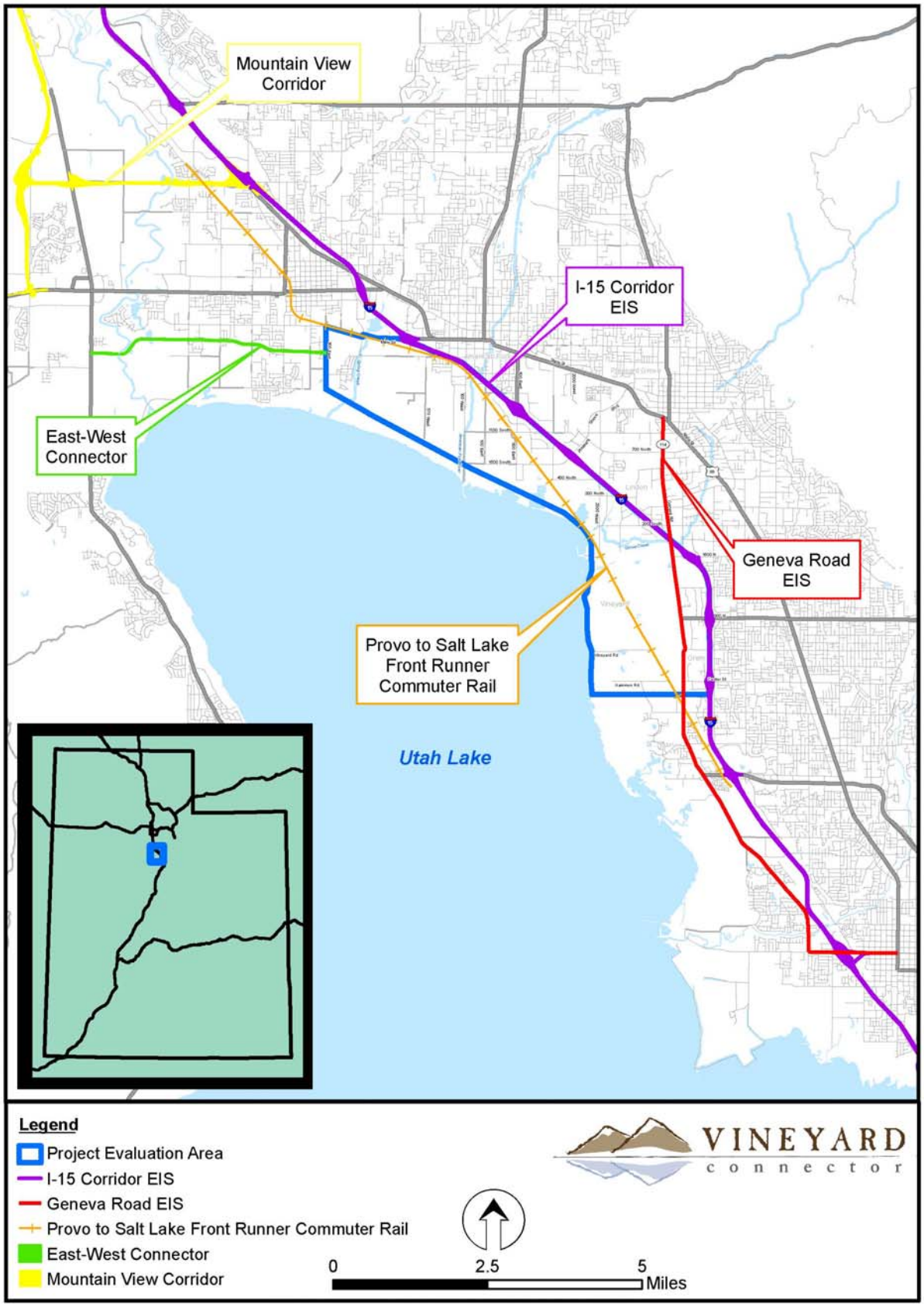
1.5 Current and Recent Projects and Studies in the Area

There are a number of other current and recent studies and projects in the region that address other transportation needs. The construction of the projects discussed in these studies will be considered in the evaluation of the VC project. Each of the projects below has independent utility and was evaluated within the MAG RTP. These other studies and projects are summarized in Table 1.5-1 below and are shown in Figure 1-2 below.

Table 1.5-1. Summary of Other Projects in the Vineyard Connector Study Area

Project	Summary	Relationship to Vineyard Connector
Geneva Road Environmental Impact Statement (EIS)	The Federal Highway Administration (FHWA), in coordination with UDOT, is currently preparing an EIS for proposed improvements to Geneva Road (also known as State Route [SR] 114) between Center Street in Provo and State Street (SR 89) in Pleasant Grove. The Geneva Road EIS is studying on-corridor and off-corridor options that would address problems associated with local and regional travel demand, traffic safety, and alternate transportation methods (transit, bicycle, and pedestrian).	The Geneva Road EIS study area abuts the VC evaluation area along Geneva Road between the point where I-15 crosses over Geneva Road in Lindon to Center Street in Orem.
I-15 Corridor Utah County to Salt Lake County EIS	In June 2008, FHWA, UDOT, MAG, and the Wasatch Front Regional Council (WFRC) completed a Final EIS that focuses on improving 44 miles of the existing I-15 corridor in Salt Lake and Utah counties. The EIS examines projected local and regional population growth, travel demand, transportation system interconnectivity, local issues, and funding and also proposes transportation solutions for the corridor.	The EIS addresses modifications to three interchanges that abut the VC evaluation area: one at American Fork Main Street, one at 800 North in Orem, and one at Center Street in Orem.
Provo to Salt Lake FrontRunner Commuter Rail EIS	UTA is currently designing the Provo to Salt Lake City FrontRunner commuter-rail project in Utah and Salt Lake counties. This project, which will be constructed in UTA right-of-way parallel to Union Pacific Railroad right-of-way, will construct a high-capacity commuter-rail transit line to serve travelers in Utah and Salt Lake counties.	The FrontRunner project includes construction of rail stations in Vineyard on the former Geneva Steel site and near the I-15/ American Fork Main Street interchange. The evaluation area discussed in this document includes an area that was studied as part of the FrontRunner project.
Mountain View Corridor EIS	FHWA and UDOT completed a Final EIS for the Mountain View Corridor (MVC) project in Salt Lake and Utah counties in September 2008. The MVC EIS addresses proposed roadway improvements in Utah and Salt Lake counties and evaluates both freeway and arterial alignments that address east-west travel demand west of I-15 and north of Utah Lake in Utah County.	Although it would not connect directly to the VC, the MVC would address regional transportation issues that also have some effect on roads in and near the VC evaluation area. The VC project assumes that the MVC alignment identified in the RTP (a freeway on 2100 North in Lehi) would be implemented.
East-West Connector Environmental Study	UDOT is proposing to build a new five-lane road from Redwood Road and about 600 North in Saratoga Springs to about 1000 South and 300 East in Lehi. This new road will address existing and anticipated congestion and mobility issues associated with east-west travel in northern Utah County. UDOT selected a contractor for construction of the East-West Connector in the fall of 2008.	The East-West Connector study area abuts the northwestern VC study area. The I-15/American Fork interchange will connect directly to the East-West Connector. The VC will probably also connect to the East-West Connector in the vicinity of the interchange.

Figure 1-2. Current and Recent Projects in the Area



1.6 Needs Assessment

1.6.1 Population and Employment

Population and employment growth are important factors in determining projected traffic. Large increases in either of these factors over an extended period can cause substantial increases in traffic. The expected 25-year population and employment growth in the project region is summarized below.

1.6.1.1 Population Projections

Population growth in Utah County is forecasted to be more robust than in other counties along the Wasatch Front (MAG 2007). Between 2005 and 2030, Utah County's population is expected to increase by about 77% in total at a rate of about 2.3% per year. Utah County's share of the total population of a four-county area that includes Weber, Davis, Salt Lake, and Utah counties is expected to increase from 23.7% of the total in 2005 to 28.0% of the total in 2030 (MAG 2007). In 2050, Utah County's population is projected to make up 31.8% of the total four-county population.

Table 1.6-1 summarizes the most recent population projections for Utah County and the cities of Lehi, American Fork, Lindon, Vineyard, and Orem. As shown, the projected population growth in the cities over 25 years will range from 27% in Orem to 6,430% in Vineyard. The main part of the project evaluation area is in American Fork, Lindon, and Vineyard, which are expected to have tremendous growth in population (an increase of 112% in the 25-year period). This means that traffic related to projected growth could greatly affect the future congestion on regional and local roads. Though most of the Provo-Orem area is built out, the planned redevelopment of the Geneva Steel site is expected to result in tremendous population growth in the Vineyard area (MAG 2006).

Table 1.6-1. 25-Year Population Projections for the Project Region

County or City	Population Projections		Average Annual Rate of Change	25-Year Change (2005–2030)
	2005	2030		
Utah County	454,000	804,000	2.3%	77%
Lehi	19,000	77,100	3.6%	305%
American Fork	22,000	38,400	1.7%	75%
Lindon	8,400	16,600	2.0%	98%
Vineyard	150	9,800	9.0%	6,430%
Orem	84,300	107,000	0.7%	27%

Source: MAG 2005a

1.6.1.2 Employment Projections

According to the Governor's Office of Planning and Budget, Utah County's share of the total employment in the four-county area that includes Weber, Davis, Salt Lake, and Utah counties is projected to increase from 19.8% of the total in 2005 to 23.8% of the total in 2030 (MAG 2007). The long-range employment projections from the Governor's Office show a continuation of this trend (MAG 2007).

Table 1.6-2 summarizes the projected employment in Utah County and the cities of Lehi, American Fork, and Lindon between 2002 and 2030. Projections for employment in the Vineyard and Orem areas are available for the period 2005 through 2030. Most of the current employment opportunities in Utah County are centered in the Provo-Orem area to the east and southeast of the project evaluation area, but employment growth in that area is expected to be below the overall county rate between now and 2030. As shown in Table 1.6-2, the average annual employment growth rates in Lehi, American Fork, Lindon, and Vineyard will exceed the county average. The highest annual rates of change are expected in Lehi and American Fork.

Table 1.6-2. 2030 Employment Projections for the Project Region

County or City	Employment Projections		Average Annual Rate of Change	25-Year Change (2005–2030)
	2002	2030		
Utah County	231,985	449,859	2.7%	94.0%
Lehi	2,218	8,497	11.8%	283.1%
American Fork	8,220	14,688	5.0%	78.7%
Lindon	5,375	8,048	3.4%	49.7%
Vineyard	6,339[a]	15,376	3.6%	142.6%
Orem	35,896[a]	47,085	1.1%	31.2%

Sources: MAG 2005b, 2006

[a] The base year for the Vineyard and Orem employment projections is 2005.

1.6.2 Regional Mobility and Access

1.6.2.1 Lack of Regional North-South Mobility

Mobility refers to the ease with which people can move from place to place using a transportation system. Impediments to mobility can include traffic congestion, numerous accesses to properties (driveways), high accident rates, and other factors. Typically, travelers will use a combination of arterial, collector, and local roads for their trips. Each type of road has a specific purpose or function.

Arterials provide a high level of mobility for through traffic and limited access to adjacent properties, while local roads provide a high level of access to properties but a low level of mobility. Local roads are typically used for access to residential neighborhoods and have low speed limits. Collector roads provide a balance between mobility and property access. For a transportation system to operate efficiently, all three types of roads are needed.

In the VC evaluation area, the road network consists of discontinuous local roads and rural collectors that are designed for lower speeds and property access. These local roads require travelers to take circuitous routes in order to travel north-south between Orem and Lehi. The center of the evaluation area does not have an arterial road that would provide a high level of mobility between the cities. As shown above in Figure 1-1, Vineyard Connector Project Evaluation Area, traffic moves north-south using a series of local, rural roads including 570 West, 100 West, 100 East, and 500 East in American Fork; 2000 West in Lindon and Vineyard; and Vineyard Road in Vineyard. East-west local travel is accommodated by 1100 South and 1500 South in American Fork, 400 North and 200 North in Lindon, 200 South in Lindon and Vineyard, and Gammon Road in Vineyard.

These roads do not provide convenient regional mobility for people traveling north-south between the Lehi–American Fork and Provo-Orem areas. In addition to the use of these roads by local residents, the roads are also regularly used by north-south commuters to avoid congestion on Geneva Road and I-15. The increased use of these local roads by regional commuters causes safety conflicts with slow-moving farm equipment, local traffic accessing residential areas, and traffic traveling to and from the established industrial areas in Lindon and Vineyard. The expected increase in population and employment in the evaluation area would only exacerbate these conditions.

Without a regional arterial road, the local road system will continue to receive an increasing amount of regional traffic (people traveling between the American Fork–Lehi area and Orem). The existing local roadway network is discontinuous and is intended for local access, not regional through-trips. A regional arterial would allow traffic to disperse more evenly and at higher speeds, which would increase mobility. In addition, the use of a limited-access arterial instead of a system of local roads would reduce conflicts with people accessing their homes or farms on local roads, which would improve safety.

Overall, the evaluation area lacks a regional transportation facility that provides a continuous road that links the municipalities and developed areas in the region. Without at least one arterial to provide the foundation for the local roadway network, the function and safety of the local and rural roads will continue to degrade.

1.6.2.2 Lack of Access

Access to Transit Services

Currently, there is no transit service in the VC evaluation area. UTA's planned FrontRunner commuter-rail line includes rail stations in Vineyard and near the interchange of Main Street in American Fork and I-15. Both of these stations would eventually serve transit customers in the evaluation area. Currently, the Vineyard Station location does not have any direct access (that is, no roads currently serve the area).

Access to the Vineyard Redevelopment Area

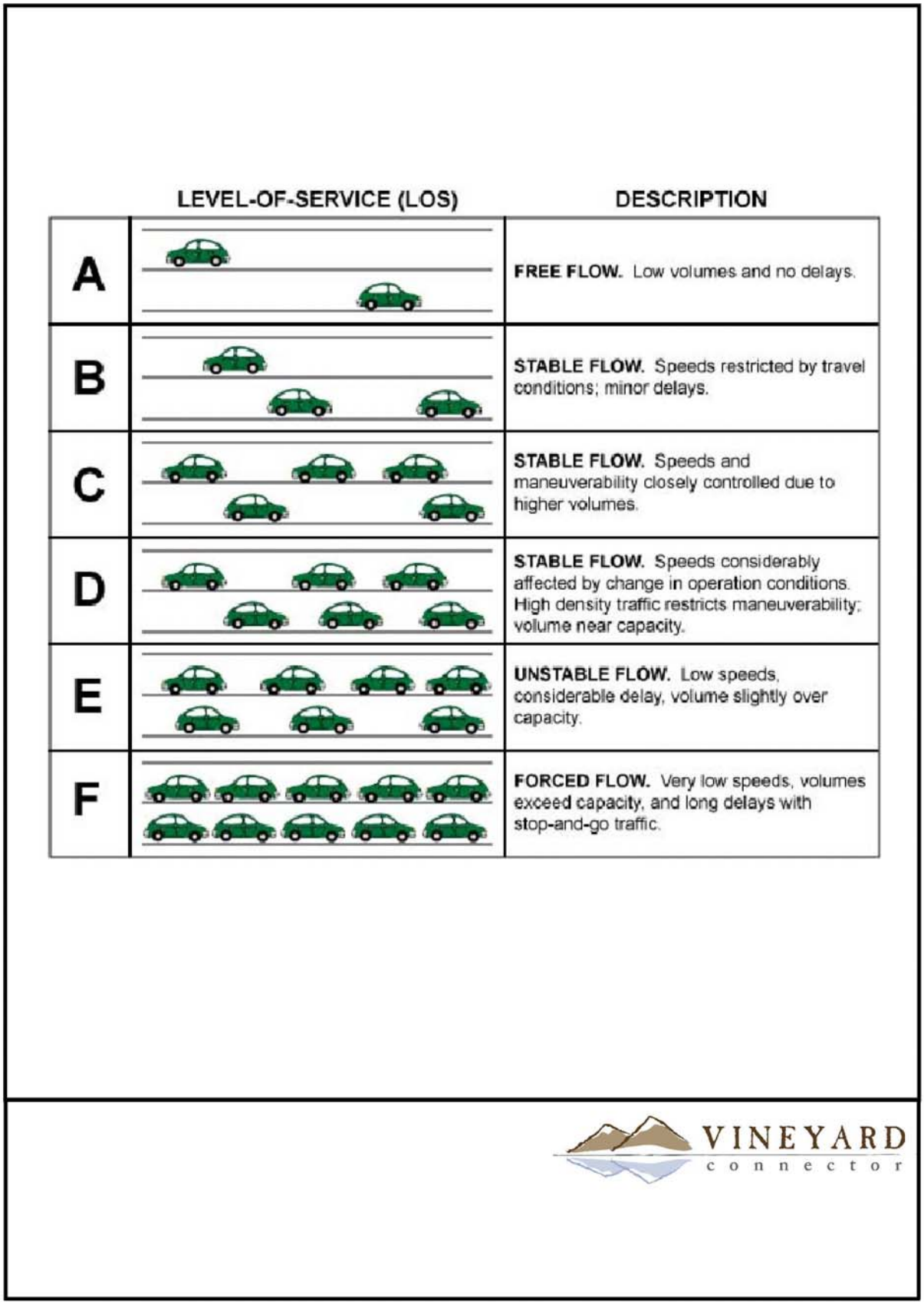
As discussed in Section 1.3, Project Background, the 1,750-acre former Geneva Steel plant site in Vineyard is undergoing extensive remediation. Access to and through the plant area would contribute to redevelopment consistent with the goals of EPA's Brownfields Program.

1.6.3 Current and Future Traffic Congestion in the Evaluation Area

1.6.3.1 Current (2005) and Future (2030) Congestion on Key Road Segments

The MAG regional travel demand model (Version 6.0) was used to determine the current (2005) and future (2030) daily volume on the primary roads in and connecting to the evaluation area. The existing traffic data and model results for 2030 were then used to determine the current and future levels of service on primary roads. Level of service (LOS) is a qualitative measure that describes how well traffic moves along a segment of road or through an intersection (see Figure 1-3 below). The future (2030) roadway network assumes an improved I-15 (widened mainline and reconstructed interchanges) and widened Geneva Road as well as a new road along 1900 South (also known as Pony Express Parkway through Saratoga Springs, Lehi, and American Fork) and the East-West Connector (which will travel through Saratoga Springs, Lehi, and American Fork).

Figure 1-3. Level of Service Descriptions



The only two north-south roads included in the MAG travel demand model in the evaluation area are I-15 and Geneva Road. Table 1.6-3 shows the level of service on these roads in the Vineyard evaluation area. As shown in the table, both I-15 and Geneva Road would operate at LOS E (heavy congestion) in 2030 when constructed as described in the 2030 RTP. This could result in drivers on these roads who intend to travel north and west outside the VC evaluation area using the local street network to avoid the heavy congestion during peak travel periods. As stated in Section 1.6.2, Regional Mobility and Access, the local road network is not suited to handle regional trips between the cities in the VC evaluation area.

Table 1.6-3. 2007 and 2030 Levels of Service on I-15 and Geneva Road

Road Segment	Level of Service[a] 2007	2030
I-15		
Main Street to 500 East	C	E
500 East to Pleasant Grove	C	E
Pleasant Grove to 1600 North	D	E
1600 North to 800 North	D	E
800 North to Center Street	D	D
Geneva Road		
State Street to 700 North	B	D
700 North to 1600 North	B	E
1600 North to 800 North	E	E
800 North to 400 North	E	C

Source: Horrocks Engineers 2008

[a] LOS A = free flow, no delays; LOS B = stable flow, minimal delays; LOS C = stable flow, acceptable delays; LOS D = restricted flow, regular delays; LOS E = maximum capacity, extended delays; LOS F = forced flow, excessive delays.

1.7 Summary

The purpose of the proposed project is to improve north-south regional mobility west of I-15 and east of Utah Lake between Lehi, American Fork, Lindon, Orem, and Vineyard and to provide access to the part of Vineyard that includes the former Geneva Steel plant site. The Utah Legislature identified the VC as a Critical Highway Needs project during its 2007 and 2008 sessions because the new road would provide access to the Geneva Steel redevelopment site and a commuter-rail station and could act as an alternate route during I-15 reconstruction.

The project is needed to provide a transportation system to address regional mobility and access issues. As it develops the VC project, UDOT intends to design a transportation system that avoids and minimizes impacts to the human and natural environments and considers the land-use and transportation planning objectives of Lehi, American Fork, Lindon, Vineyard, and Orem.

1.8 References

Horrocks Engineers

2008 Vineyard Capacity No-Action LOS Summary. March 19.

[MAG] Mountainland Association of Governments

2005a 2000 through 2030 Population Projections for Municipalities and Counties. www.mountainland.org/Demographics/Population_Data/Future_Projections/Summit,%20Utah,%20and%20Wasatch%20Municipal%20Projections.pdf. Accessed April 4, 2008.

2005b Northeast Utah Valley Transportation Study. Prepared for MAG by InterPlan and Carter & Burgess. September.

2006 Provo-Orem Transportation Study. Prepared for MAG by InterPlan and Carter & Burgess. September.

2007 Regional Transportation Plan 2007–2030.

[UDOT] Utah Department of Transportation

2007 Statewide Transportation Improvement Program 2007–2012. June.